Mitigating The Possibility Of Contact With Voltage In Excess of 50 Volts While Working On The SMT System

Revision Log

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1.0	3/9/01	All	Initial Issue

Approvals

Petros Rapidis	*3/9/01*
SMT Group Co-leader	Date
Eric Kajfasz	*3/9/01*
SMT Group Co-leader	Date
Rick Hance	*3/9/01*
Project Electrical Engineer	Date
W. S. Freeman	*3/9/01*
Operations Manager	Date

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1 INTRODUCTION

1.1 Purpose

This procedure provides instructions on how to safely avoid contact with bias voltages in excess of 50 Volts from the DØ bias voltage system of the Silicon Microstrip Tracker (SMT) while working on various components of this system and, in particular, on the adapter cards that are mounted at the face of the calorimeter.

1.2 Scope and Applicability

The SMT bias voltage is normally controlled by software operated by detector experts or shift personnel from the DØ control room. Since the SMT adaptor cards are covered with insulating Kapton tape immediately following the hookup of the low mass cables, and before the 80-conductor cables are connected to the Interface Boards, there is no exposure to the bias voltage during the initial installation. Thus the only time that there is risk of exposure to the bias voltage is during maintenance of the interface cards, especially if the Kapton tape needs to be removed. Additionally, for the other parts of the system (cabling, fanout boxes, and power supplies), the same risk of exposure exists if work is to be done on these components. Following this procedure is required of anyone who may be exposed to bias voltages from the SMT bias voltage system while working on any of the SMT systems. The SMT Group Leaders shall insure that such workers are competent in the use of this procedure.

This procedure does not address the maintenance or repair of SMT bias (high) voltage supplies.

2 PRECAUTIONS AND LIMITATIONS

Failure to follow this procedure could result in surprising and/or painful electrical shock, with added risk because SMT work on the adaptor cards occurs on ladders or elevated platforms.

3 PROCEDURE

3.1 Power Supply Disablement

[1] Inform the DØ Control Room shift personnel (if present) that work is going to be performed on the SMT system.

[2] Do one of the following:

[a] Request that the shift personnel set the software controls to the DISABLED state for the relevant supplies.

[b] Turn off the bias voltage(s) to the relevant detector components by setting their software state to DISABLED.

[3] Turn off the power supply to the relevant crate(s), via the breakers located at the top of the relay rack housing the SMT bias supplies.

[4] Do the following:

[a] Place caution tags on the relevant crate breaker(s).

[b] Place a note on the software control window in the DØ Control Room.

[c] Place a note in the control room logbook concerning the work.

3.2 Restoring Service

[1] Plug any bias voltage cables back into their connectors to the detector or the modules from which they were disconnected, after completing work.

[2] Ensure that Kapton tape is used on every adaptor card.

[3] Verify that no one else is working on the bias voltage system.

[4] Restore the power to the relevant crates by turning their breaker on.

[5] Remove the caution tag from the breaker.

[6] Restore the relevant bias voltage to the appropriate condition (either stand-by or 100%), or ask the shift personnel on duty to do it.

[7] Remove the console note.

[8] Indicate in the logbook that the work was completed.

[9] At an appropriate time, verify that voltages can be turned on successfully.

4 REFERENCES

None

5 APPENDICES

None